

MEMORANDUM

DATE: April 22, 2016

TO: Colin Polk, Portland Development Commission

FROM: Richard Ernst, RG *ROE*

RE: **Transformer Room Assessment**
Centennial Mills (ESCI #5136)
1362 NW Naito Parkway, Portland, Oregon
15825-00

This memorandum documents the decommissioning of the Transformer Room at the Centennial Mills site in Portland, Oregon. The Portland Development Commission (PDC) is in the process of demolishing portions of the former flour mill in preparation for future redevelopment. Hart Crowser was provided information regarding the removal of the transformers and then conducted wipe sampling to assess surfaces and drains for polychlorinated biphenyls (PCBs). A description of the transformer removal and the PCB assessment activities and findings is presented below.

Background

The Centennial Mills site is located at 1362 NW Naito Parkway, just north of its intersection with NW 9th Avenue, in Portland, Oregon (Figure 1). The site is located along the southwest bank of the Willamette River at approximately river mile 11.4. Centennial Mills operated as a flour mill on the site from 1910 through 2000, when PDC purchased the property. In 2001, PDC remodeled a portion of the mill for the City of Portland Mounted Patrol Unit. Due to significant deterioration of the remaining mill buildings, PDC began demolishing select portions of the mill in 2015.

Electrical power for the mill was provided by 10 transformers located in the Transformer Room (a.k.a. Transformer Vault) on the roof of Warehouse E (Figures 2 and 3). Main disconnect “switch gear” were also present in the room. The room was constructed in approximately 1928. A floor drain is located within the room and is currently capped beneath the room. It is unknown when the drain was disconnected. Beneath the Transformer Room, the drain was previously connected to a storm drainpipe that lead to outfall WR-336 at the seawall beneath Warehouse C (Figure 2).

Historically, oils with PCBs were present in these transformers. Testing in 2003 detected up to 26.3 parts per million (ppm) PCBs (GRI 2003). Surfaces in the room were also previously tested for PCBs. In 1999, five wipe samples were obtained from the north wall and floor of the Transformer Vault. Analysis for



PCBs detected 3.8 micrograms per 100 square centimeters ($\mu\text{g}/100\text{ cm}^2$) in sample S-5 from the north wall (Hart Crowser 2000). In 2003, a wipe sample was obtained from the drain, but PCBs were not detected (GRI 2003). The open drainpipe below, however, had $3.36\text{ }\mu\text{g}/100\text{ cm}^2$ PCBs (GRI 2003). Previous wipe sample data are included in Table 1. As discussed below, Hart Crowser conducted further wipe sampling in 2015.

Removal Activities

In August 2015, PDC had the transformers and switch gear boxes removed from the Transformer Room on the rooftop of Warehouse E at the site (Figure 2). Equipment removal occurred on August 18 and 19, 2015, and was completed by Portland General Electric (PGE) with observation by PDC consultants. Ten transformers and four switch gear boxes were carefully lowered from the rooftop Transformer Room using a crane lift. The electrical equipment was handled as to not tip over and placed on plastic sheeting (Photograph 1 in Attachment A) prior to being taken off the site on August 21, 2015, for proper disposal (Photograph 2). Damage or spillage of oil was not observed during the removal work. Photograph 3 shows the Transformer Room after removal of the electrical equipment. PGE loaded and transported the transformers and switch gear boxes off the site to PGE's yard for final disposal.

PCB Assessment

To assess whether PCBs were present on concrete within the Transformer Room, Hart Crowser obtained 12 wipe samples from the concrete floor surface on September 1, 2015 (WS-1 through WS-9 and WS-11, WS-12, and WS-13 on Figure 3). Samples were collected from floor surface areas where the former electrical equipment had been positioned. Apparent oil staining was observed at each of the sample locations. Additional wipe samples were collected from inside the floor drain located near the middle of the room (WS-10) and inside the drain line below the Transformer Room (WS-14). PDC dye tested the drain line to confirm it lead to Outfall WR-336 at seawall near the river. Because Outfall WR-336 was accessible underneath Warehouse C at the mill (Figure 2), a PCB wipe sample was obtained from outfall pipe on September 11, 2015 (Photograph 4).

Wipe sampling followed 40 Code of Federal Regulations (CFR) 761.123. Wipes were laboratory-supplied gauze pads wetted with hexane solvent. The wipe samples were collected over an area of 100 square centimeters (cm^2), using a disposable 10 by 10 centimeter square template. Each wipe was uniformly "blotted" over the entire 100 cm^2 sample area and placed in a laboratory supplied jar. The wipe samples were submitted to Apex Laboratories in Tigard, Oregon, for chemical analysis for PCBs by EPA Method 8082A. Data is presented in Table 1 and copies of the laboratory reports are included as Attachment B.

PCB Aroclor 1260 was detected above laboratory method reporting limits (MRLs) in all of the wipe samples from the Transformer Room. Additionally, PCB Aroclor 1254 was detected at WS-9, WS-10, and WS-13. Most detections of total PCBs were less than $0.400\text{ }\mu\text{g}/100\text{ cm}^2$. Drain line samples WS-10 and



WS-14 had the highest total PCB detections of 2.25 and 2.47 $\mu\text{g}/100\text{ cm}^2$, respectively. Analytical result on the wipe sample at the outfall WR-336 (WS-15) did not have detectable PCBs indicating that PCBs had not reached the end of the drain pipe and subsequently the river.

During the assessment activities, PDC also requested that Hart Crowser sample oil from the two switch gear reservoirs in the Flour Mill main floor electrical room. Oil samples were submitted to Apex Laboratories for PCB analysis, with results not detecting PCBs over MRLs (1.52 and 1.71 ppm). These results are included in a laboratory report in Attachment B.

Summary and Conclusions

Based on field observations and chemical data from this and prior assessments, concrete surfaces and the drain in the Transformer Room have low levels of PCBs. Although PCBs were detected in all samples from the room surfaces in 2015 and only one sample in 1999, this observation is more likely due to lower MRLs in 2015 than a release(s) since 1999. This explanation would also apply to the floor drain. Total PCB concentrations in the Transformer Room ranged up to 3.80 $\mu\text{g}/100\text{ cm}^2$ (north wall sample S-5 from 1999). All these concentrations are below EPA's cleanup criteria of 10 $\mu\text{g}/100\text{ cm}^2$ for high contact residential/commercial surfaces in non-restricted access areas (40 CFR 761.125(c)(4)(ii)).

The drain pipe below the Transformer Room, to which the room's drain may have been historically connected, had similar total PCB concentrations of 3.36 and 2.47 $\mu\text{g}/100\text{ cm}^2$ when tested in 2003 and 2015, respectively (this pipe did not receive any flow between these years). Although PCBs were present in the drain pipe near the Transformer Room, a wipe sample obtained from the pipe's eventual outfall was non-detect for PCBs (MRL of 0.200 $\mu\text{g}/100\text{ cm}^2$). These data indicate that PCBs had not reached the outfall (WR-336) and thus the Willamette River.

The Source Control Evaluation (SCE) for the Centennial Mills site (Hart Crowser 2013) had identified the Transformer Room as a possible upland source of contamination. In Section 6.2 of the SCE, sediment data near Outfall WR-336 were used as a line of evidence to support that the Transformer Room had not impacted the river. Wipe sample data now confirms that PCBs from the Transformer Room did not reach the river. We recommend that the Oregon Department of Environmental Quality acknowledge that concerns with the Transformer Room are now closed in relation to the SCE.

Attachments:

Table 1 - Wipe Chemical Analyses Results: PCBs

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Figure 3 – Sampling Plan, Transformer Room

Attachment A – Photographs

Attachment B – Laboratory Reports



References:

GRI 2003. *PCBs, Pesticides, Mercury, and Air Investigation, Centennial Mill, 1362 NW Naito Parkway, Portland, Oregon.* August 25, 2003.

Hart Crowser 2000. *Phase I and II Environmental Site Assessment, Centennial Mill, 1362 NW Naito Parkway, Portland, Oregon.* February 2, 2000.

Hart Crowser 2013. *Final Upland Source Control Evaluation, Centennial Mills, 1362 NW Naito Parkway, Portland, Oregon.* March 21, 2013.

Table 1 - Wipe Chemical Analyses Results: PCBs
Centennial Mills
Portland, Oregon

Sample	Date	Aroclor							Total PCBs
		1016	1221	1232	1242	1248	1254	1260	
1999 Assessment		Concentration in µg/100 cm ²							
<u>Floor</u>									
S-1	13-Dec-99	<2.00	<4.00	<2.00	<2.00	<2.00	<2.00	<2.00	<4.00
S-2	13-Dec-99	<2.00	<4.00	<2.00	<2.00	<2.00	<2.00	<2.00	<4.00
S-3	13-Dec-99	<2.00	<4.00	<2.00	<2.00	<2.00	<2.00	<2.00	<4.00
S-4	14-Dec-99	<2.00	<4.00	<2.00	<2.00	<2.00	<2.00	<2.00	<4.00
<u>North Wall</u>									
S-5	13-Dec-99	<2.00	<4.00	<2.00	<2.00	<2.00	<2.00	3.80	3.80
2003 Assessment									
<u>Drain</u>									
#3918-FD	13-Dec-99	<2.00	<4.00	<2.00	<2.00	<2.00	<8.00	<2.00	<8.00
<u>Pipe in Room Below</u>									
SP-MZ-FD-1	13-Dec-99	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3.36	3.36
2015 Assessment									
<u>Floor - Switch Boxes</u>									
WS-1	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.108	0.108
WS-2	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.150	0.305	0.305
WS-3	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.200	0.181	0.181
WS-4	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.150	0.192	0.192
<u>Floor - Transformers</u>									
WS-5	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.322	0.322
WS-6	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.146	0.146
WS-7	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.130	0.130
WS-8	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.137	0.137
WS-9	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	0.145	0.992	1.14
WS-11	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.213	0.213
WS-12	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	1.28	1.28
WS-13	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	0.418	0.445	0.863
<u>Drain</u>									
WS-10	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	0.743	1.51	2.25
<u>Pipe in Room Below</u>									
WS-14	1-Sep-15	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	2.47	2.47
<u>Outfall WR-336</u>									
WS-15	11-Sep-15	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

Notes:

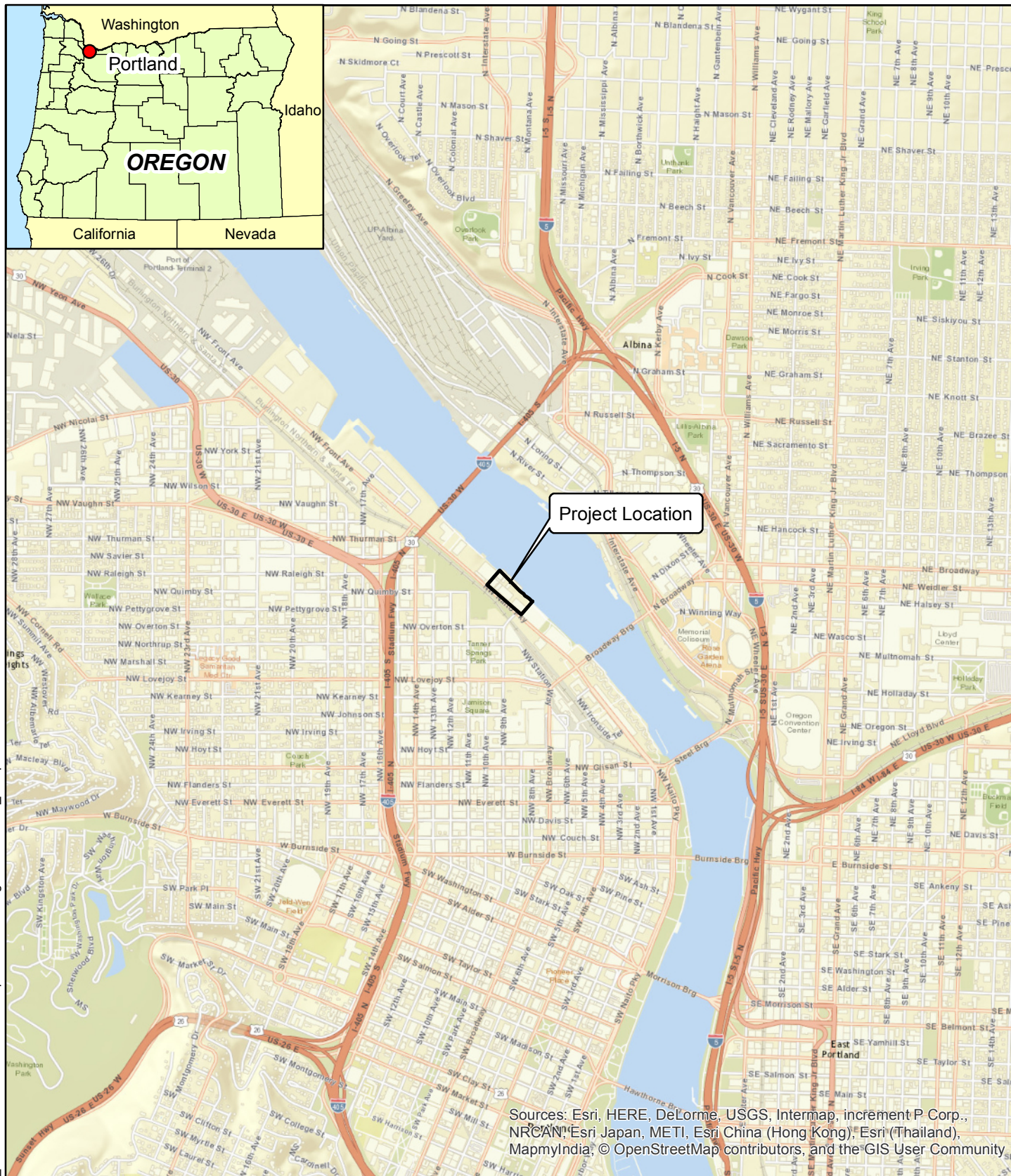
1. PCBs by EPA Method 8082.
2. Bolding denotes a detected concentration.
3. < = Not detected above the indicated laboratory method reporting limit
4. Total PCB summation is only detected Aroclors. If no Aroclors were detected, the highest MRL is listed.

Acronyms:

EPA = Environmental Protection Agency

PCBs = Polychlorinated biphenyls

µg/100 cm² = micrograms per 100 square centimeters



0 1,000 2,000 4,000 Feet



Centennial Mills
1362 NW Naito Parkway, Portland, Oregon

Vicinity Map

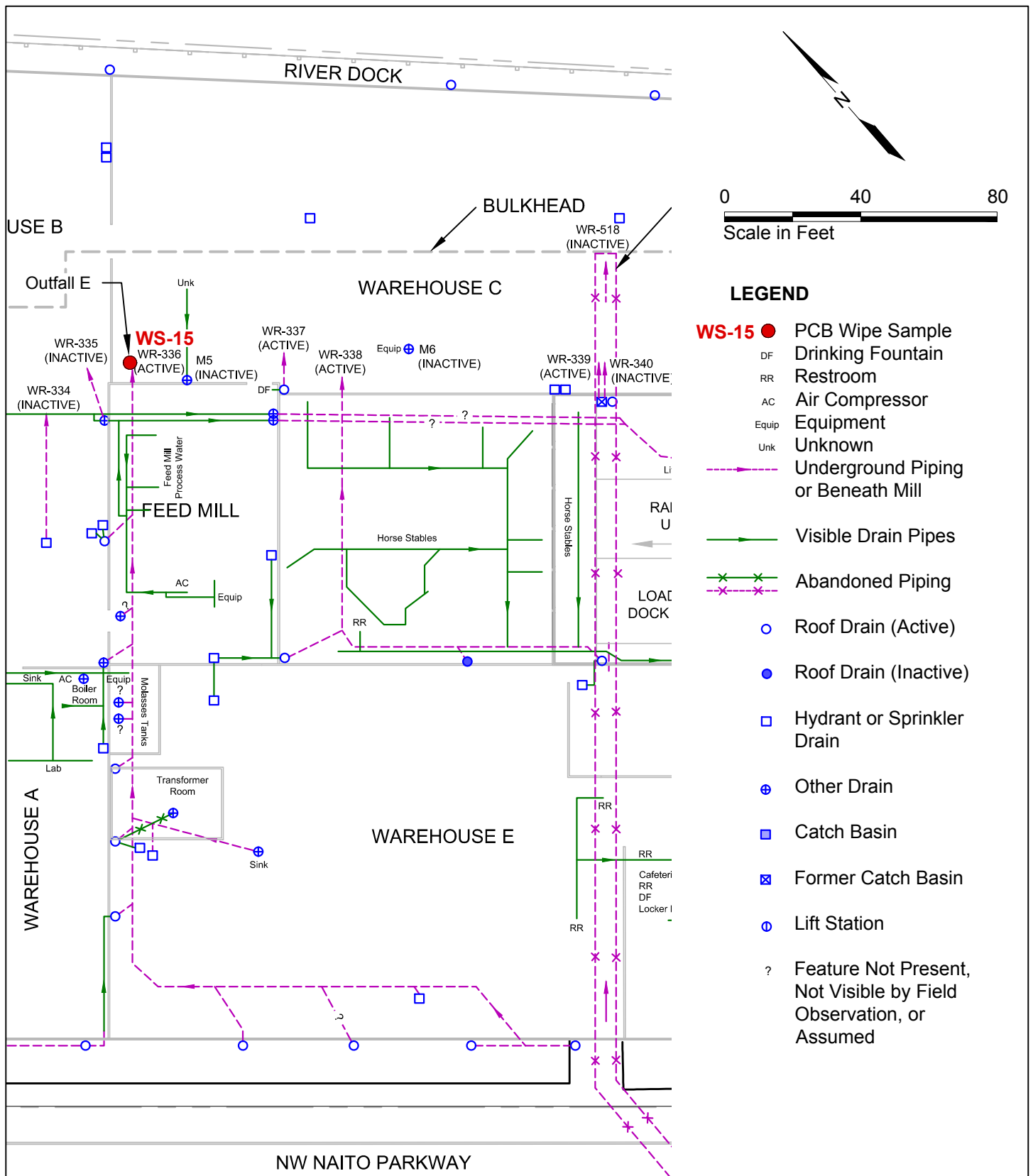
15825-00

3/16



Figure

1



Notes:

- 1.) Not all laterals and stubs shown.
- 2.) Piping locations are approximate.
- 3.) Underground pipe from historical building plans.
- 4.) This plan should not be used for construction purposes.

Sources: Historical building plans, plumbing permits, sewer videos, and site reconnaissance.

Centennial Mills
1362 NW Naito Parkway, Portland, Oregon

Site Plan

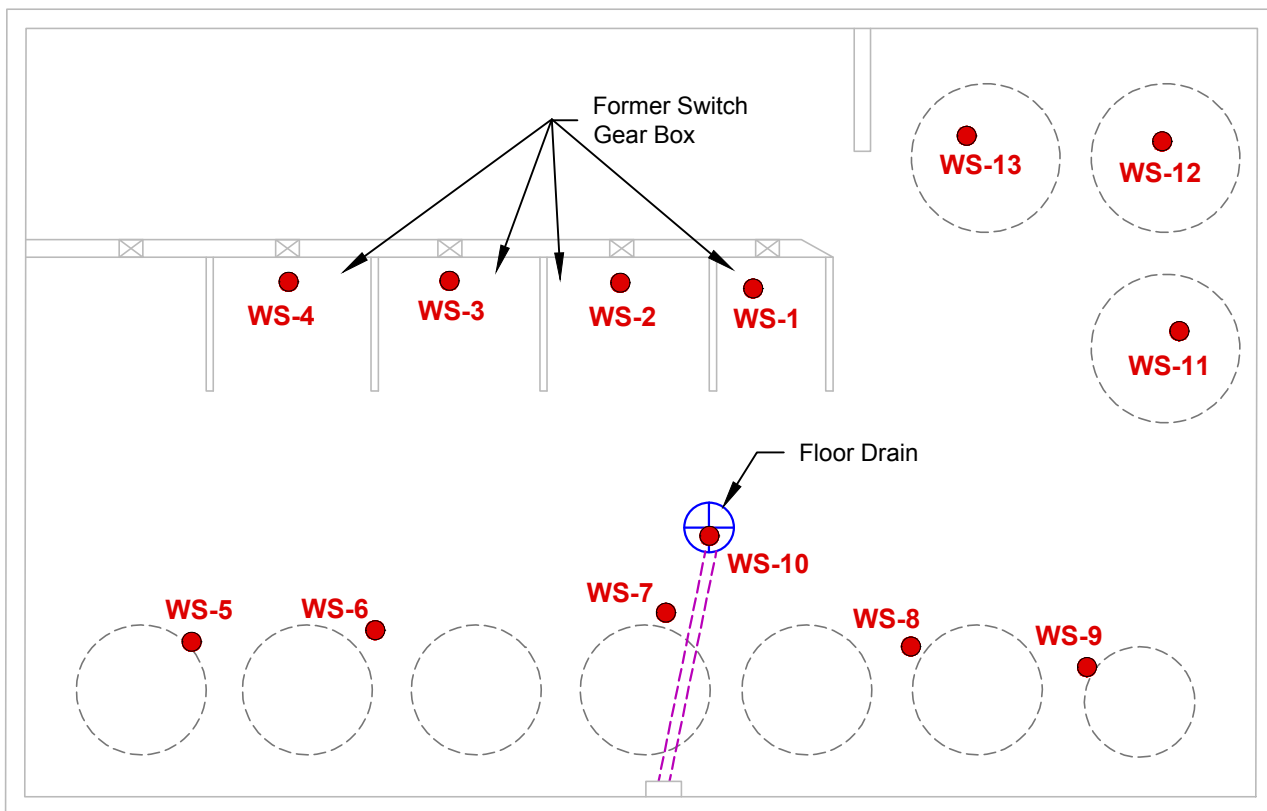
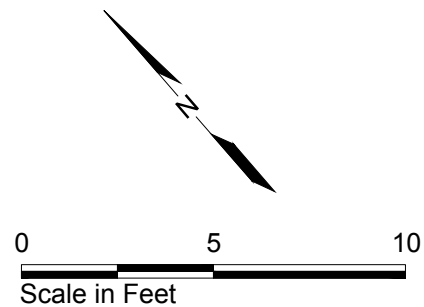
15825-00

3/16



Figure

2



LEGEND

- WS-12** ● PCB Wipe Sample
- Former Transformer

Centennial Mills
1362 NW Naito Parkway, Portland, Oregon

Sampling Plan Transformer Room

15825-00

3/16



Figure

3

ATTACHMENT A
Photographs



Photograph 1 – View of staged switch gear boxes, prior to being taken off the site.



Photograph 2 – Photograph of crane used to load the transformers from the building.



Photograph 3 – View of Transformer Room after removal of electrical equipment.



Photograph 4 – Outfall WR-336 sample location and 10 by 10 centimeter disposable square template.

ATTACHMENT B
Laboratory Reports

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, September 9, 2015

Rick Ernst
Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

RE: Centennial Mill / 15825.00

Enclosed are the results of analyses for work order A510056, which was received by the laboratory on 9/2/2015 at 11:00:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Lisa Domenighini, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

Project: **Centennial Mill**
Project Number: 15825.00
Project Manager: Rick Ernst

Reported:
09/09/15 12:27

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WS-1	A5I0056-01	Wipe	09/01/15 13:37	09/02/15 11:00
WS-2	A5I0056-02	Wipe	09/01/15 13:43	09/02/15 11:00
WS-3	A5I0056-03	Wipe	09/01/15 13:49	09/02/15 11:00
WS-4	A5I0056-04	Wipe	09/01/15 13:55	09/02/15 11:00
WS-5	A5I0056-05	Wipe	09/01/15 14:00	09/02/15 11:00
WS-6	A5I0056-06	Wipe	09/01/15 14:02	09/02/15 11:00
WS-7	A5I0056-07	Wipe	09/01/15 14:04	09/02/15 11:00
WS-8	A5I0056-08	Wipe	09/01/15 14:06	09/02/15 11:00
WS-9	A5I0056-09	Wipe	09/01/15 14:08	09/02/15 11:00
WS-10	A5I0056-10	Wipe	09/01/15 14:10	09/02/15 11:00
WS-11	A5I0056-11	Wipe	09/01/15 14:12	09/02/15 11:00
WS-12	A5I0056-12	Wipe	09/01/15 14:14	09/02/15 11:00
WS-13	A5I0056-13	Wipe	09/01/15 14:16	09/02/15 11:00
WS-14	A5I0056-14	Wipe	09/01/15 14:18	09/02/15 11:00
Headhouse Elevator A 1	A5I0056-15	Oil	09/01/15 13:17	09/02/15 11:00
Headhouse Elevator A 2	A5I0056-16	Oil	09/01/15 13:23	09/02/15 11:00
Trip Blank	A5I0056-17	Wipe	09/01/15 00:00	09/02/15 11:00

Apex Laboratories



Lisa Domenighini, Project Manager

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Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008Project: Centennial Mill
Project Number: 15825.00
Project Manager: Rick ErnstReported:
09/09/15 12:27

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
WS-1 (A510056-01)			Matrix: Wipe		Batch: 5090096			C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 09:46	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	0.108	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 90 %</i>	<i>Limits: 72-126 %</i>	"	"	"	
WS-2 (A510056-02)			Matrix: Wipe		Batch: 5090096			C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 10:23	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.150	"	"	"	"	R-02
Aroclor 1260	0.305	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 71 %</i>	<i>Limits: 72-126 %</i>	"	"	"	S-06
WS-3 (A510056-03)			Matrix: Wipe		Batch: 5090096			C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 11:00	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.200	"	"	"	"	R-02
Aroclor 1260	0.181	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 90 %</i>	<i>Limits: 72-126 %</i>	"	"	"	
WS-4 (A510056-04)			Matrix: Wipe		Batch: 5090096			C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 11:38	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.150	"	"	"	"	R-02
Aroclor 1260	0.192	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 88 %</i>	<i>Limits: 72-126 %</i>	"	"	"	

Apex Laboratories

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Lisa Domenighini, Project Manager

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008Project: Centennial Mill
Project Number: 15825.00
Project Manager: Rick ErnstReported:
09/09/15 12:27

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
WS-5 (A510056-05)		Matrix: Wipe		Batch: 5090096		C-07		
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 12:14	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	0.322	---	0.100	"	"	"	"	P-09
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 83 %</i>		<i>Limits: 72-126 %</i>		<i>"</i>		
WS-6 (A510056-06)		Matrix: Wipe		Batch: 5090096		C-07		
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 12:52	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	0.146	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 93 %</i>		<i>Limits: 72-126 %</i>		<i>"</i>		
WS-7 (A510056-07)		Matrix: Wipe		Batch: 5090096		C-07		
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 13:28	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	0.130	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 90 %</i>		<i>Limits: 72-126 %</i>		<i>"</i>		
WS-8 (A510056-08)		Matrix: Wipe		Batch: 5090096		C-07		
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 08:50	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	0.137	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 94 %</i>		<i>Limits: 72-126 %</i>		<i>"</i>		

Apex Laboratories

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Lisa Domenighini, Project Manager

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008Project: Centennial Mill
Project Number: 15825.00
Project Manager: Rick ErnstReported:
09/09/15 12:27

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
WS-9 (A510056-09)			Matrix: Wipe	Batch: 5090096				C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 09:27	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	0.145	---	0.100	"	"	"	"	P-10
Aroclor 1260	0.992	---	0.100	"	"	"	"	P-10
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 98 %</i>	<i>Limits: 72-126 %</i>	"	"	"	
WS-10 (A510056-10)			Matrix: Wipe	Batch: 5090096				C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 10:04	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	0.743	---	0.100	"	"	"	"	P-10
Aroclor 1260	1.51	---	0.100	"	"	"	"	P-10
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 104 %</i>	<i>Limits: 72-126 %</i>	"	"	"	
WS-11 (A510056-11)			Matrix: Wipe	Batch: 5090096				C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 10:42	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	0.213	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 98 %</i>	<i>Limits: 72-126 %</i>	"	"	"	
WS-12 (A510056-12)			Matrix: Wipe	Batch: 5090096				C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 11:19	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	1.28	---	0.100	"	"	"	"	P-10
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 103 %</i>	<i>Limits: 72-126 %</i>	"	"	"	

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Lisa Domenighini, Project Manager

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008Project: Centennial Mill
Project Number: 15825.00
Project Manager: Rick ErnstReported:
09/09/15 12:27

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
WS-13 (A5I0056-13)		Matrix: Wipe		Batch: 5090096		C-07		
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 11:56	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	0.418	---	0.100	"	"	"	"	P-10
Aroclor 1260	0.445	---	0.100	"	"	"	"	P-10
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 72-126 %</i>		<i>"</i>		
WS-14 (A5I0056-14)		Matrix: Wipe		Batch: 5090096		C-07		
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 12:33	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	2.47	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 72-126 %</i>		<i>"</i>		
Headhouse Elevator A 1 (A5I0056-15)		Matrix: Oil		Batch: 5090092		C-07		
Aroclor 1016	ND	---	1.52	mg/kg	2	09/03/15 09:31	EPA 8082A	
Aroclor 1221	ND	---	1.52	"	"	"	"	
Aroclor 1232	ND	---	1.52	"	"	"	"	
Aroclor 1242	ND	---	1.52	"	"	"	"	
Aroclor 1248	ND	---	1.52	"	"	"	"	
Aroclor 1254	ND	---	1.52	"	"	"	"	
Aroclor 1260	ND	---	1.52	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 85 %</i>		<i>Limits: 55-120 %</i>		<i>"</i>		
Headhouse Elevator A 2 (A5I0056-16)		Matrix: Oil		Batch: 5090092		C-07		
Aroclor 1016	ND	---	1.71	mg/kg	2	09/03/15 08:52	EPA 8082A	
Aroclor 1221	ND	---	1.71	"	"	"	"	
Aroclor 1232	ND	---	1.71	"	"	"	"	
Aroclor 1242	ND	---	1.71	"	"	"	"	
Aroclor 1248	ND	---	1.71	"	"	"	"	
Aroclor 1254	ND	---	1.71	"	"	"	"	
Aroclor 1260	ND	---	1.71	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 55-120 %</i>		<i>"</i>		

Apex Laboratories

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Lisa Domenighini, Project Manager

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

Project: **Centennial Mill**
Project Number: 15825.00
Project Manager: Rick Ernst

Reported:
09/09/15 12:27

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Trip Blank (A510056-17)			Matrix: Wipe		Batch: 5090096			C-07
Aroclor 1016	ND	---	0.100	ug/Wipe	1	09/04/15 13:10	EPA 8082A	
Aroclor 1221	ND	---	0.100	"	"	"	"	
Aroclor 1232	ND	---	0.100	"	"	"	"	
Aroclor 1242	ND	---	0.100	"	"	"	"	
Aroclor 1248	ND	---	0.100	"	"	"	"	
Aroclor 1254	ND	---	0.100	"	"	"	"	
Aroclor 1260	ND	---	0.100	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 87 %</i>	<i>Limits: 72-126 %</i>	"	"	"	

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Lisa Domenighini, Project Manager

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Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

Project: Centennial Mill
Project Number: 15825.00
Project Manager: Rick Ernst

Reported:
09/09/15 12:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090092 - EPA 3580A/Sulfuric Acid and Florisil Cleanup						Transformer Oil						
Blank (5090092-BLK1)						Prepared: 09/03/15 07:15 Analyzed: 09/03/15 08:52					C-07	
EPA 8082A												
Aroclor 1016	ND	---	0.633	mg/kg	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	0.633	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	---	0.633	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	---	0.633	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	---	0.633	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	---	0.633	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	---	0.633	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 87 %		Limits: 55-120 %		Dilution: 1x						
LCS (5090092-BS1)						Prepared: 09/03/15 07:15 Analyzed: 09/03/15 09:11					C-07	
EPA 8082A												
Aroclor 1016	13.3	---	0.800	mg/kg	1	20.0	---	66	50-120%	---	---	
Aroclor 1260	19.3	---	0.800	"	"	"	---	96	60-120%	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 97 %		Limits: 55-120 %		Dilution: 1x						
Duplicate (5090092-DUP1)						Prepared: 09/03/15 07:15 Analyzed: 09/03/15 10:09					C-07	
QC Source Sample: Headhouse Elevator A 1 (A5I0056-15)												
EPA 8082A												
Aroclor 1016	ND	---	1.67	mg/kg	2	---	ND	---	---	---	30%	
Aroclor 1221	ND	---	1.67	"	"	---	ND	---	---	---	30%	
Aroclor 1232	ND	---	1.67	"	"	---	ND	---	---	---	30%	
Aroclor 1242	ND	---	1.67	"	"	---	ND	---	---	---	30%	
Aroclor 1248	ND	---	1.67	"	"	---	ND	---	---	---	30%	
Aroclor 1254	ND	---	1.67	"	"	---	ND	---	---	---	30%	
Aroclor 1260	ND	---	1.67	"	"	---	ND	---	---	---	30%	
Surr: Decachlorobiphenyl (Surr)		Recovery: 90 %		Limits: 55-120 %		Dilution: 2x						
Matrix Spike (5090092-MS1)						Prepared: 09/03/15 07:15 Analyzed: 09/03/15 09:31					C-07	
QC Source Sample: Headhouse Elevator A 2 (A5I0056-16)												
EPA 8082A												
Aroclor 1016	10.5	---	1.60	mg/kg	2	20.0	ND	53	50-120%	---	---	
Aroclor 1260	17.6	---	1.60	"	"	"	ND	88	60-120%	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 97 %		Limits: 55-120 %		Dilution: 2x						

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Lisa Domenighini, Project Manager

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Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008Project: Centennial Mill
Project Number: 15825.00
Project Manager: Rick ErnstReported:
09/09/15 12:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090096 - EPA 3546						Wipe						
Blank (5090096-BLK1)				Prepared: 09/03/15 08:03		Analyzed: 09/04/15 08:50					C-07	
EPA 8082A												
Aroclor 1016	ND	---	0.100	ug/Wipe	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	0.100	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	---	0.100	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	---	0.100	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	---	0.100	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	---	0.100	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	---	0.100	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			Recovery: 93 %		Limits: 72-126 %		Dilution: 1x					
LCS (5090096-BS1)				Prepared: 09/03/15 08:03		Analyzed: 09/04/15 09:08					C-07	
EPA 8082A												
Aroclor 1016	1.55	---	0.100	ug/Wipe	1	2.50	---	62	47-134%	---	---	
Aroclor 1260	2.14	---	0.100	"	"	"	---	86	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			Recovery: 84 %		Limits: 72-126 %		Dilution: 1x					
LCS Dup (5090096-BSD1)				Prepared: 09/03/15 08:03		Analyzed: 09/04/15 09:27					C-07, Q-19	
EPA 8082A												
Aroclor 1016	1.58	---	0.100	ug/Wipe	1	2.50	---	63	47-134%	2	30%	
Aroclor 1260	2.07	---	0.100	"	"	"	---	83	53-140%	3	30%	
Surr: Decachlorobiphenyl (Surr)			Recovery: 85 %		Limits: 72-126 %		Dilution: 1x					

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Lisa Domenighini, Project Manager

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Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008Project: Centennial Mill
Project Number: 15825.00
Project Manager: Rick ErnstReported:
09/09/15 12:27

SAMPLE PREPARATION INFORMATION

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090096							
A5I0056-01	Wipe	EPA 8082A	09/01/15 13:37	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-02	Wipe	EPA 8082A	09/01/15 13:43	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-03	Wipe	EPA 8082A	09/01/15 13:49	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-04	Wipe	EPA 8082A	09/01/15 13:55	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-05	Wipe	EPA 8082A	09/01/15 14:00	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-06	Wipe	EPA 8082A	09/01/15 14:02	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-07	Wipe	EPA 8082A	09/01/15 14:04	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-08	Wipe	EPA 8082A	09/01/15 14:06	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-09	Wipe	EPA 8082A	09/01/15 14:08	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-10	Wipe	EPA 8082A	09/01/15 14:10	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-11	Wipe	EPA 8082A	09/01/15 14:12	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-12	Wipe	EPA 8082A	09/01/15 14:14	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-13	Wipe	EPA 8082A	09/01/15 14:16	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-14	Wipe	EPA 8082A	09/01/15 14:18	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50
A5I0056-17	Wipe	EPA 8082A	09/01/15 00:00	09/03/15 08:03	1 Wipe/5mL	1 Wipe/10mL	0.50

Prep: EPA 3580A/Sulfuric Acid and Florisil Cleanup

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090092							
A5I0056-15	Oil	EPA 8082A	09/01/15 13:17	09/03/15 07:15	0.132g/5mL	0.2g/5mL	1.52
A5I0056-16	Oil	EPA 8082A	09/01/15 13:23	09/03/15 07:15	0.117g/5mL	0.2g/5mL	1.71

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Lisa Domenighini, Project Manager

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Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

Project: **Centennial Mill**
Project Number: 15825.00
Project Manager: Rick Ernst

Reported:
09/09/15 12:27

Notes and Definitions

Qualifiers:

- C-07 Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- P-09 Due to weathering and/or the presence of an unknown mixture of PCB Congeners, the pattern does not match the standard used for calibration. Results are Estimated and based on the closest matching Aroclor.
- P-10 Result estimated due to the presence of multiple PCB Aroclors and/or matrix interference.
- Q-19 Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- R-02 The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- S-06 Surrogate recovery is outside of established control limits.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.

For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- *** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).



Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

Project: **Centennial Mills**
Project Number: 15825.00
Project Manager: Rick Ernst

Reported:
09/09/15 12:27

Lab # **A510DS0** coc **1 of 2**

CHAIN OF CUSTODY

APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Hart Crowser		Project Mgr: Rick Ernst		Project Name: Centennial Mills		Project # 15825.00	
Address: 8910 SW Gemini Dr Beaverton, Oregon		Phone: 503.620-7284		Fax: 503.620-6116		Email: rick.ernst@hartcrowser.com	
Sampled by: Chris Martin							
Site Location: OR <input checked="" type="radio"/> WA <input type="radio"/>							
Other: _____							
SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	ANALYSIS REQUEST	
1 WS-1	9115	1337	Wipe	1			
2 WS-2	1343			1			
3 WS-3	1349			1			
4 WS-4	1355			1			
5 WS-5	1400			1			
6 WS-6	1402			1			
7 WS-7	1404			1			
8 WS-8	1406			1			
9 WS-9	1408			1			
10 WS-10	1410			1			
Normal Turn Around Time (TAT) = 7-10 Business Days						<input checked="" type="radio"/> YES <input type="radio"/> NO	
TAT Requested (circle)		1 Day	2 Day	3 Day	Other: Standard		
SAMPLES ARE HELD FOR 30 DAYS							
RELINQUISHED BY:		RECEIVED BY:					
Signature: Chris Martin		Signature: Rick Ernst					
Date: 9/9/15		Date: 9/9/15					
Printed Name: Chris Martin		Printed Name: Rick Ernst					
Time: 11:00		Time: 11:00					
Company: Hart Crowser		Company: Hart Crowser					

Lisa Domenighini

Reported:
09/09/15 12:27

Page 13 of 13

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, September 16, 2015

Rick Ernst
Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

RE: Centennial Mill / 15825-00

Enclosed are the results of analyses for work order A510301, which was received by the laboratory on 9/11/2015 at 10:05:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Lisa Domenighini, Project Manager

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Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

Project: Centennial Mill
Project Number: 15825-00
Project Manager: Rick Ernst

Reported:
09/16/15 08:59

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WS-15	A5I0301-01	Wipe	09/11/15 09:25	09/11/15 10:05

Apex Laboratories



Lisa Domenighini, Project Manager

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Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

Project: Centennial Mill
Project Number: 15825-00
Project Manager: Rick Ernst

Reported:
09/16/15 08:59

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
WS-15 (A5I0301-01)			Matrix: Wipe		Batch: 5090327			C-07
Aroclor 1016	ND	---	0.200	ug/Wipe	1	09/15/15 10:02	EPA 8082A	
Aroclor 1221	ND	---	0.200	"	"	"	"	
Aroclor 1232	ND	---	0.200	"	"	"	"	
Aroclor 1242	ND	---	0.200	"	"	"	"	
Aroclor 1248	ND	---	0.200	"	"	"	"	
Aroclor 1254	ND	---	0.200	"	"	"	"	
Aroclor 1260	ND	---	0.200	"	"	"	"	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>			<i>Recovery: 95 %</i>	<i>Limits: 72-126 %</i>	"	"	"	

Apex Laboratories



Lisa Domenighini, Project Manager

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Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008Project: Centennial Mill
Project Number: 15825-00
Project Manager: Rick ErnstReported:
09/16/15 08:59

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5090327 - EPA 3546						Wipe						
Blank (5090327-BLK1)						Prepared: 09/14/15 11:25		Analyzed: 09/15/15 09:06		C-07		
EPA 8082A												
Aroclor 1016	ND	---	0.200	ug/Wipe	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	0.200	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	---	0.200	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	---	0.200	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	---	0.200	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	---	0.200	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	---	0.200	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			Recovery: 89 %		Limits: 72-126 %		Dilution: 1x					
LCS (5090327-BS1)						Prepared: 09/14/15 11:25		Analyzed: 09/15/15 09:24		C-07		
EPA 8082A												
Aroclor 1016	1.73	---	0.200	ug/Wipe	1	2.50	---	69	47-134%	---	---	
Aroclor 1260	2.43	---	0.200	"	"	"	---	97	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			Recovery: 95 %		Limits: 72-126 %		Dilution: 1x					
LCS Dup (5090327-BSD1)						Prepared: 09/14/15 11:25		Analyzed: 09/15/15 09:43		C-07, Q-19		
EPA 8082A												
Aroclor 1016	1.66	---	0.200	ug/Wipe	1	2.50	---	67	47-134%	4	30%	
Aroclor 1260	2.43	---	0.200	"	"	"	---	97	53-140%	0.09	30%	
Surr: Decachlorobiphenyl (Surr)			Recovery: 90 %		Limits: 72-126 %		Dilution: 1x					

Apex Laboratories



Lisa Domenighini, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Hart Crowser, Inc.
8910 SW Gemini Drive
Beaverton, OR 97008

Project: Centennial Mill
Project Number: 15825-00
Project Manager: Rick Ernst

Reported:
09/16/15 08:59

SAMPLE PREPARATION INFORMATION

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 5090327							
A5I0301-01	Wipe	EPA 8082A	09/11/15 09:25	09/14/15 11:25	1 Wipe/5mL	1 Wipe/5mL	1.00

Apex Laboratories



Lisa Domenighini, Project Manager

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Notes and Definitions

Qualifiers:

- C-07 Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- Q-19 Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS)
- QC Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
- For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
- Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- *** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).



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APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: HART CROWSER INC Project Mgr: RICK ERNST

Address: 8910 SW GEMINI DRIVE BEAVERTON, OR Phone: 503-620-7888 Fax:

Sampled by: ANTHONY CENAVEZ

Site Location: OR WA
Other:

SAMPLE ID: WS-15

Lab # A510001 coc 1 of 1

Project Name: CENTENNIAL MILLS Project # 15825-00

Email: rick.ernst@hartcrowser.com

ANALYSIS REQUEST

LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HClD	NWTPH-Dx	NWTPH-Gx	8260 VOC	8260 RBDM VOCs	8260 BTEX	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	AL, Sb, As, Ba, Be, Cd, Cr, Cu, Co, Ni, Pb, Hg, Mn, Mo, Se, Si, Zn, Ag, Na, TL, V, Zn	TOTAL DISS TCLP	1200-COLS	1200-Z
1	9/11/15	925		1									X							
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Normal Turn Around Time (TAT) = 7-10 Business Days

	1 Day	2 Day	3 Day	Other
TAT Requested (circle)				SPD

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: [Signature] Date: 9/16/15

Printed Name: A. CENAVEZ Time: 10:05

Company: HART CROWSER

RECEIVED BY: [Signature] Date: 9/16/15

Printed Name: Rick Ernst Time: 10:05

Company: Apex

Lisa Domenighini